

Trend Study 14-16-99

Study site name: Lower Lost Park.

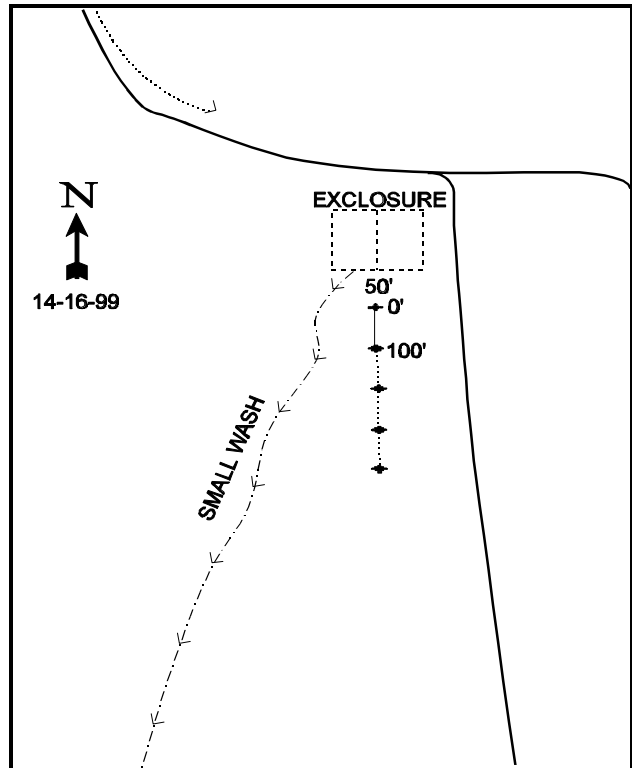
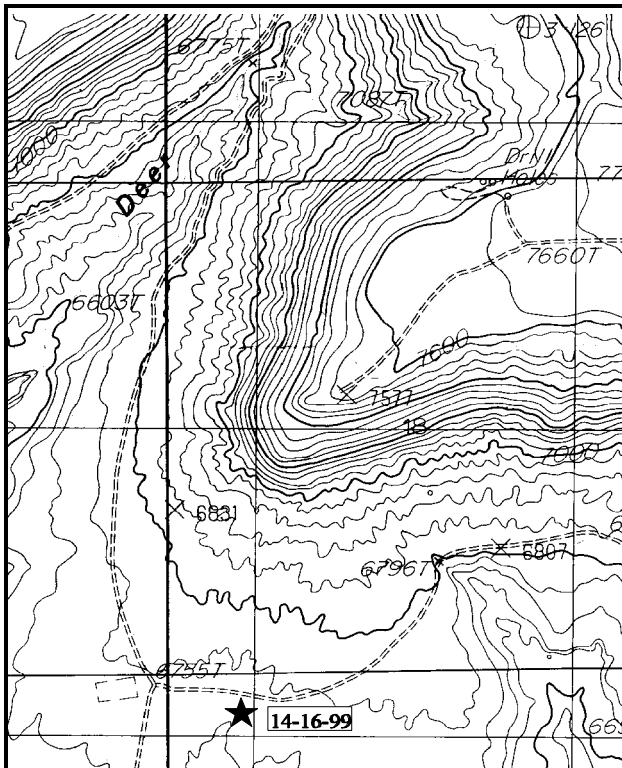
Range type: Big Sagebrush.

Compass bearing: frequency baseline 165°M.

Footmark (first frame at) 5 feet, footmarks (frequency belts) line 1 (11& 71ft), line 2 (34ft), line 3 (59ft), line 4 (95ft).

LOCATION DESCRIPTION

From the turnoff to the Kigalia Guard Station, proceed 2.4 miles southwest towards the Bears Ears. At the intersection, turn right and go west 2.1 miles. Go straight over the cattleguard, past a corral and continue 1.7 miles to a fork. Stay left and continue 1.5 miles to the FS/BLM boundary. Cross the cattleguard and go 2.45 miles to a fork by a stock pond. Stay right and go 0.6 miles. Stay left at this fork and continue 0.6 miles to another fork. Stay left and go 1.85 miles to an enclosure (Deer Flat enclosure and transect). Stay left at the fork by the enclosure and proceed 0.7 miles. Stay left at the forks, then drop off the rim down a tight switchback. Go just under 4 miles to an enclosure. Turn right on the road just east of the enclosure and stop after 100 feet. The transect begins 50 feet south of the center of the enclosure. All transect stakes are green fence posts. The 0-foot baseline post is tagged #7884.



Map Name: Woodenshoe Butte

Diagrammatic Sketch

Township 36S, Range 18E, Section 19

UTM 4167112.344 N, 589573.463 E

DISCUSSION

Trend Study No. 14- 16 (36-4)

The BLM administered study site in Lower Lost Park samples deer winter range in a sagebrush-pinyon-juniper flat below and south of the mouth of Deer Canyon. This area is on the west side of Elk Ridge. Topography at the study area is basically level at an elevation of 6,700 feet. The area drains west and south into the deep slickrock of White Canyon. It was originally treated (chaining) in 1969. Crested wheatgrass and some four-wing saltbush were seeded. A livestock permittee is allocated 120 AUMs; 60 cattle from April 1 to May 31. In October 1986, following the establishment of this study, the herbicide tebuthiuron was applied. Edges and drainages were supposedly left untreated for wildlife use. By 1992, it appeared that the herbicide treatment was either ineffective or not initiated, for the sagebrush and juniper showed no effects of being chemically treated. The area does receive a fair amount of deer use during the winter. The pellet group trend transect on the study site shows from 0 to 22 deer days use/acre (0-55 ddu/ha), but averaged only 11 ddu/acre (29 ddu/ha) over the 5-year period from 1981-86 (Jense et al. 1986). In the 5-year period between 1987-1992, deer days use had risen to 38 ddu/acre (96 ddu/ha) (Jense et al. 1992). Deer use between 1993 and 1997 averaged 44 ddu/acre (109 ddu/ha). Pellet group data taken in 1999 along the trend study site baseline estimated 56 deer days use/acre (138 ddu/ha), 1 elk days use/acre (2 edu/ha), and 7 cow days use/acre (17 cdu/ha).

The study is set up just outside an old (1958) cattle and deer enclosure. Animals have apparently been inside the enclosure and except for greater cryptogam development in the enclosure, there is little observable differences.

The light orange soil is moderately deep and loose on top with a light crust. It is more compacted below the surface layer. Soil texture is a loam with an effective rooting depth estimated at almost 15 inches. Depth is likely deeper since soil compaction makes soil penetrometer depth readings difficult. Phosphorus and potassium are low at just 3.3 ppm and 44.8 ppm respectively. Values less than 10 ppm for phosphorus and 70 ppm for potassium have been determined limiting to normal plant growth and development. No rocks were encountered on the surface or within the profile. Vegetative cover is scattered, leaving large bare interspaces that are very susceptible to erosion. This erosive disturbance could easily be the limiting factor for the establishment of browse and other herbaceous understory species within the bare interspaces.

At the time of study establishment, August 1986, a moderately dense and mostly decadent stand of Wyoming big sagebrush dominated the site. These plants displayed moderate to heavy hedging, a clubbed appearance, characterized with low growth and little seed production. Ten-foot tall pinyon pine and juniper were well established and appeared to be gaining dominance on the site. Density of sagebrush increased slightly in 1992, but some of the difference is due to the much larger sample used in 1992. Use was still moderate to heavy, vigor poor, and percent decadence high at 69%. By 1999, density had declined to 4,740 plants/acre. It appears that the population of mature plants has remained relatively constant while many of the decadent plants died. Use is still moderate to heavy and vigor poor on a third of the plants sampled. Percent decadence has declined but it is still high at 47%. Leader growth and seed production are currently poor. Recruitment in the form of seedlings and young is nearly non existent.

The herbicide treatment planned for October 1986 had the objective to kill the Wyoming big sagebrush and pinyon-juniper trees and release the understory grasses. In August 1986, the understory was depleted with grass frequency very low. By 1999, conditions are similar with perennial grasses providing only 2% cover. Forbs are also lacking and few species are common. The planned treatment obviously did not take place.

1986 APPARENT TREND ASSESSMENT

When sampled, the study area appeared to be in poor condition and experiencing a downward trend. The herbicide treatment was planned to benefit livestock, however it had the potential to improve the range

condition and trend for big game as well. Management objectives should continue to include wildlife concerns. A grazing deferment for at least one season is necessary to allow grasses to reestablish and avoid causing accelerated soil loss. Cattle grazing after that point could be beneficial to sagebrush reestablishment. If some herbaceous cover and browse forage is maintained as specified in the plan, deer could also take advantage of spring forage on the treated areas. This study will either monitor vegetative changes on a treated area, or if the specific site was not actually treated (unknown at this time), note changes in use on an adjacent area affected by loss of other habitat.

1992 TREND ASSESSMENT

It appears that the treatment was not done or it was totally ineffective on the browse and tree species. The soil trend appears to be stable to slightly improving with increases in litter cover and a slight decrease in percent bare ground. Although, the soil condition is still very poor with a real need for the establishment of more herbaceous understory cover to protect it from high intensity summer storms that will continue to cause severe soil movement and losses. The browse trend at this time is best described as stable, with an increase in density (14%) offset somewhat by an increase in percent decadence, now up to 69%. But, biotic potential (<1%) is almost nonexistent and there are very few plants in the young age class (1%). These sagebrush population parameters should be closely monitored, especially if the prolonged drought continues. The herbaceous understory trend can be best described as down, with a large decrease in nested grass frequencies and a slight decline in nested perennial forb frequencies. Grasses are the most important component of the herbaceous understory and are weighted more heavily in determining trend for this site.

TREND ASSESSMENT

soil - stable, but still very poor condition

browse - stable, but population parameters should be watch closely

herbaceous understory - down, still poor for grasses with crested wheatgrass almost non-existent

1999 TREND ASSESSMENT

Trend for soil appears stable, but in poor condition with abundant bare ground exposed and erosion occurring. Trend for browse is down. Density has declined 45% since 1992, use is moderate to heavy, those classified with poor vigor has increased, and recruitment is poor. Percent decadence has declined, however 33% of the decadent plants sampled appear to be dying. There is currently not enough young plants to maintain the population, so a further decline in density is likely. On the positive side, density of mature plants has remained relatively stable since 1986. Without better recruitment however, the population will continue to become decadent and die out. Trend for the herbaceous understory is stable for perennial grasses and forbs. However, there has been a significant increase in the nested frequency of cheatgrass which was not present in 1992. It now occurs in 45% of the quadrats. Cover of cheatgrass is still low, but can increase rapidly as it has on other sites within the unit. Sixweeks fescue, another annual, has also increased significantly in nested frequency since 1992. It now accounts for 32% of the grass cover, up from 11% in 1992. With this in mind, trend for the herbaceous understory is considered down slightly.

TREND ASSESSMENT

soil - stable but in poor condition

browse - down

herbaceous understory - down slightly

HERBACEOUS TRENDS --
Herd unit 14 , Study no: 16

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'86	'92	'99	'86	'92	'99	'92	'99
G	Agropyron cristatum	11	2	10	4	2	6	.01	.10
G	Bouteloua gracilis	a-	b16	18	-	6	9	.22	.12
G	Bromus tectorum (a)	-	a-	b116	-	-	45	-	.86
G	Oryzopsis hymenoides	ab26	b41	a14	12	21	6	.35	.09
G	Poa fendleriana	b47	a-	a-	20	-	-	-	-
G	Sitanion hystrix	b157	a72	a89	67	34	39	.78	1.28
G	Stipa comata	18	20	34	8	8	14	.26	.22
G	Vulpia octoflora (a)	-	a70	b135	-	32	50	.21	1.26
Total for Annual Grasses		0	70	251	0	32	95	0.20	2.13
Total for Perennial Grasses		259	151	165	111	71	74	1.64	1.82
Total for Grasses		259	221	416	111	103	169	1.85	3.96
F	Arabis spp.	-	-	4	-	-	2	-	.01
F	Astragalus convallarius	95	87	75	47	48	42	.96	.79
F	Calochortus nuttallii	a-	b11	a-	-	4	-	.02	-
F	Cordylanthus wrightii (a)	a13	b157	a1	6	72	1	6.91	.00
F	Descurainia pinnata (a)	-	-	2	-	-	1	-	.00
F	Erigeron pumilus	a25	a19	b52	14	12	25	.16	.77
F	Eriogonum racemosum	-	-	2	-	-	1	-	.00
F	Lesquerella spp.	-	2	-	-	1	-	.00	-
F	Madia glomerata (a)	-	-	1	-	-	1	-	.00
F	Machaeranthera grindelioides	b36	a6	a3	17	4	1	.02	.00
F	Penstemon comarrhenus	b53	ab36	a19	23	14	9	1.29	.12
F	Phlox longifolia	a207	b259	253	80	90	89	2.03	1.49
F	Sphaeralcea coccinea	b33	a12	ab19	17	7	10	.11	.08
F	Townsendia spp.	-	4	2	-	2	1	.01	.00
F	Unknown forb-annual (a)	-	2	-	-	1	-	.00	-
F	Unknown forb-perennial	2	-	-	1	-	-	-	-
Total for Annual Forbs		13	159	4	6	73	3	6.92	0.01
Total for Perennial Forbs		451	436	429	199	182	180	4.62	3.28
Total for Forbs		464	595	433	205	255	183	11.54	3.30

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --

Herd unit 14 , Study no: 16

Type	Species	Strip Frequency		Average Cover %	
		'02	'09	'02	'09
B	Artemisia tridentata wyomingensis	95	93	17.77	14.76
B	Chrysothamnus depressus	11	3	.04	.30
B	Chrysothamnus viscidiflorus	0	3	-	-
B	Eriogonum microthecum	4	4	.18	.03
B	Gutierrezia sarothrae	0	0	-	.00
B	Juniperus osteosperma	4	5	.56	.33
B	Opuntia spp.	1	3	-	-
B	Pinus edulis	10	6	6.81	7.19
Total for Browse		125	117	25.37	22.63

CANOPY COVER --

Herd unit 14 , Study no: 16

Species	Percent Cover '09
Pinus edulis	6

BASIC COVER --

Herd unit 14 , Study no: 16

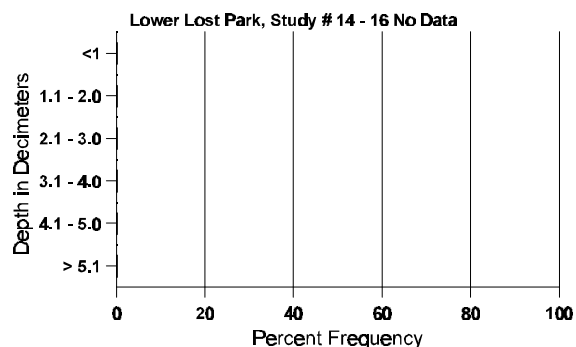
Cover Type	Nested Frequency		Average Cover %		
	'02	'09	'86	'92	'99
Vegetation	317	313	3.25	32.20	27.01
Rock	-	3	0	.01	.00
Pavement	-	-	0	0	0
Litter	259	375	28.25	29.35	31.84
Cryptogams	71	132	2.00	2.19	3.28
Bare Ground	266	340	66.50	46.18	48.67

SOIL ANALYSIS DATA --

Herd Unit 14, Study # 16, Study Name: Lower Lost Park

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
14.5	73.5 (11.8)	6.9	44.0	32.2	23.8	1.0	3.3	44.8	0.5

Stoniness Index



PELLET GROUP DATA --

Herd unit 14 , Study no: 16

Type	Quadrat Frequency		Pellet Transect Days Use/Acre (ha)
	'82	'89	
Rabbit	44	60	N/A
Elk	-	1	1 (2)
Deer	49	39	56 (138)
Cattle	3	-	7 (17)

BROWSE CHARACTERISTICS --

Herd unit 14 , Study no: 16

A Y G R E	Form Class (No. of Plants)	Vigor Class									Plants Per Acre	Average (inches) Ht. Cr.	Total				
		1	2	3	4	5	6	7	8	9				1	2	3	4
Artemisia tridentata wyomingensis																	
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	-	-	-	-	-	-	1	-	-	1	-	-	-	20		1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	1	1	-	1	-	-	-	-	-	3	-	-	-	60		3
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
M	86	10	19	11	1	-	-	-	-	-	35	3	-	3	2733	20 19	41
	92	42	52	22	6	3	1	-	-	5	104	14	13	-	2620	- -	131
	99	38	39	35	1	11	1	-	-	-	92	9	24	-	2500	19 29	125
D	86	6	20	43	1	-	-	-	-	-	43	3	-	24	4666		70
	92	75	83	58	13	41	14	3	-	9	201	6	35	54	5920		296
	99	15	29	53	1	11	-	2	-	-	53	4	17	37	2220		111
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	880		44
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'86		35%			49%			24%			+14%						
'92		42%			25%			24%			-45%						
'99		38%			38%			33%									
Total Plants/Acre (excluding Dead & Seedlings)												'86	7399	Dec:	63%		
												'92	8600		69%		
												'99	4740		47%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus depressus																		
Y	86	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	92	1	3	-	-	-	-	-	-	-	4	-	-	-	80		4	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	86	3	-	-	-	-	-	-	-	-	3	-	-	-	200	6	6	
	92	2	4	1	-	1	-	1	-	-	9	-	-	-	180	-	-	
	99	2	-	2	-	-	-	-	-	-	4	-	-	-	80	8	11	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%			- 2%							
'92		62%			08%			00%			-69%							
'99		00%			50%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	266	Dec:	-			
												'92	260		-			
												'99	80		-			
Chrysothamnus viscidiflorus																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40	13	15	
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'92		00%			00%			00%										
'99		00%			00%			33%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	0%			
												'92	0		0%			
												'99	60		33%			
Eriogonum microthecum																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	-	-	-	-	-	-	1	-	-	1	-	-	-	20		1	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	-	-	-	1	-	-	3	-	-	4	-	-	-	80		4	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	92	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	
	99	3	1	-	-	-	-	-	-	-	4	-	-	-	80	3	7	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'92		00%			00%			00%			-33%							
'99		25%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	-			
												'92	120		-			
												'99	80		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	2	-	-	-	-	-	-	-	-	-	2	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'92		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	-			
												'92	0		-			
												'99	0		-			
Juniperus osteosperma																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	92	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	2	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'92		00%			00%			00%			+20%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	-			
												'92	80		-			
												'99	100		-			
Opuntia spp.																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	86	1	-	-	-	-	-	-	-	-	1	-	-	-	66	8	12	
	92	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	-	
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	9	27	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%			-70%							
'92		00%			00%			00%			+75%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	66	Dec:	-			
												'92	20		-			
												'99	80		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Pinus edulis																	
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	92	4	-	-	-	-	-	-	-	-	4	-	-	-	80	-	4
	99	2	-	-	-	-	-	1	1	-	4	-	-	-	80	-	4
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	92	-	-	-	-	-	-	1	-	-	1	-	-	-	20		1
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'86		00%			00%			00%									
'92		00%			00%			00%			-40%						
'99		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	0%		
												'92	200		10%		
												'99	120		0%		